

WHAT IS CLAIMED IS:

1 1. A method for an IPv6 enabled node to engage in IPv6 communication across a
2 network containing IPv4 components, the method comprising:
3 the IPv6 enabled node sending a query to a Domain Name System server, the
4 query identifying the IPv6 enabled node;
5 responsive to sending the query, the IPv6 enabled node receiving at least one
6 identifier of at least one IPv6 connect agent from the Domain Name
7 System server;
8 the IPv6 enabled node determining an IPv6 connect agent to use to engage in IPv6
9 communication across the network containing IPv4 components;
10 the IPv6 enabled node determining an address of that IPv6 connect agent; and
11 the IPv6 enabled node engaging in IPv6 communication across the network
12 containing IPv4 components, using the determined address to
13 communicate with that IPv6 connect agent.

1 2. The method of claim 1, wherein responsive to sending the query, the IPv6 enabled
2 node further receives at least one associated attribute concerning at least one IPv6 connect agent
3 from the Domain Name System server.

1 3. The method of claim 2, wherein:
2 at least one received attribute comprises an address of an associated IPv6 connect
3 agent.

1 4. The method of claim 3, wherein the IPv6 enabled node determining an address of that
2 IPv6 connect agent comprises:

3 gleaning the address from a received associated attribute concerning that IPv6
4 connect agent.

1 5. The method of claim 2, wherein:

2 at least one received attribute comprises information concerning a physical
3 location of an associated IPv6 connect agent.

1 6. The method of claim 5 wherein the IPv6 enabled node determining an IPv6 connect
2 agent to use to engage in IPv6 communication across the network containing IPv4 components
3 comprises:

4 the IPv6 enabled node choosing the IPv6 connect agent that is physically closest
5 to the IPv6 enabled node.

1 7. The method of claim 1, wherein the IPv6 enabled node determining an IPv6 connect
2 agent to use to engage in IPv6 communication across the network containing IPv4 components
3 comprises:

4 responsive to the IPv6 enabled node having received exactly one identifier of
5 exactly one IPv6 connect agent from the Domain Name System server, the
6 IPv6 enabled node choosing that one IPv6 connect agent.

1 8. The method of claim 1, wherein the IPv6 enabled node determining an IPv6 connect
2 agent to use to engage in IPv6 communication across the network containing IPv4 components
3 comprises:

4 the IPv6 enabled node choosing the IPv6 connect agent whose identifier the IPv6
5 enabled node received first.

1 9. The method of claim 1, wherein the IPv6 enabled node determining an address of that
2 IPv6 connect agent comprises:

3 the IPv6 enabled node sending the received identifier of that IPv6 connect agent
4 to the Domain Name System server; and
5 responsive to sending the received identifier, the IPv6 enabled node receiving the
6 address of that IPv6 connect agent from the Domain Name System server.

1 10. The method of claim 1, wherein:

2 the query sent by the IPv6 enabled node to the Domain Name System server
3 comprises an Internet Protocol address.

1 11. The method of claim 1, wherein:

2 the query sent by the IPv6 enabled node to the Domain Name System server
3 comprises a Media Access Control address.

1 12. The method of claim 1, wherein:

2 the query sent by the IPv6 enabled node to the Domain Name System server
3 comprises a character string.

1 13. A method for a Domain Name System server to provide to an IPv6 enabled node an
2 address of an IPv6 connect agent, the method comprising:

3 the Domain Name System server receiving a query from an IPv6 enabled node,

4 the query identifying the IPv6 enabled node;

5 responsive to the Domain Name System server receiving the query, the Domain

6 Name System server determining at least one identifier of at least one IPv6

7 connect agent; and

8 the Domain Name System server sending to the IPv6 enabled node at least one

9 identifier of at least one IPv6 connect agent.

1 14. The method of claim 13, wherein the Domain Name System server determining at
2 least one identifier of at least one IPv6 connect agent comprises:

3 using the entire received query as a key to find a record in a lookup table.

1 15. The method of claim 13, wherein the Domain Name System server determining at
2 least one identifier of at least one IPv6 connect agent comprises:

3 using a portion of the received query to find a record in a lookup table.

1 16. The method of claim 13, further comprising:

2 the Domain Name System server sending to the IPv6 enabled node an associated

3 attribute concerning at least one IPv6 connect agent.

1 17. The method of claim 16, wherein:

2 at least one attribute comprises an address of an associated IPv6 connect agent.

1 18. The method of claim 16, wherein:

2 at least one associated attribute comprises information concerning a physical
3 location of an associated IPv6 connect agent.

1 19. The method of claim 13, further comprising:

2 the Domain Name System server sending to the IPv6 enabled node at least one
3 name of at least one IPv6 connect agent; and
4 the Domain Name System server receiving a name of a desired IPv6 connect
5 agent from an IPv6 enabled node.

1 20. The method of claim 19, wherein the Domain Name System server determining at
2 least one identifier of at least one IPv6 connect agent comprises:

3 using the received name of the desired IPv6 connect agent to find a record in a
4 lookup table; and
5 gleaned from the found record an identifier of an IPv6 connect agent to send to
6 the IPv6 enabled node.

1 21. The method of claim 13, wherein the Domain Name System server determining at
2 least one identifier of at least one IPv6 connect agent comprises:

3 using a Naming Authority Pointer Domain Name System resource record.

1 22. The method of claim 13, wherein the query received by the Domain Name System
2 server comprises an Internet Protocol address.

1 23. The method of claim 13, wherein the query received by the Domain Name System
2 server comprises a Media Access Control address.

1 24. The method of claim 13, wherein the query received by the Domain Name System
2 server comprises a character string.

1 25. A system for an IPv6 enabled node to engage in IPv6 communication across a
2 network containing IPv4 components, the system comprising:

3 a software portion configured to send a query to a Domain Name System server,

4 the query identifying the IPv6 enabled node;

5 a software portion configured to receive at least one identifier of at least one IPv6

6 connect agent from the Domain Name System server, responsive to having

7 sent the query;

8 a software portion configured to determine an IPv6 connect agent to use to engage

9 in IPv6 communication across the network containing IPv4 components;

10 a software portion configured to determine an address of that IPv6 connect agent;

11 and

12 a software portion configured to engage in IPv6 communication across the

13 network containing IPv4 components, using the determined address to

14 communicate with that IPv6 connect agent.

1 26. The system of claim 25, further comprising a software portion configured to receive
2 at least one associated attribute concerning at least one IPv6 connect agent from the Domain
3 Name System server, responsive to having sent the query.

1 27. The system of claim 26, wherein:

2 at least one received attribute comprises an address of an associated IPv6 connect
3 agent.

1 28. The system of claim 27, further comprising:

2 a software portion configured to glean the address from a received associated
3 attribute concerning that IPv6 connect agent.

1 29. The system of claim 25, further comprising:

2 a software portion configured to send the received identifier of that IPv6 connect
3 agent to the Domain Name System server; and
4 a software portion configured to receive the address of that IPv6 connect agent
5 from the Domain Name System server, responsive to having sent the
6 received identifier.

1 30. A system for a Domain Name System server to provide to an IPv6 enabled node an
2 address of an IPv6 connect agent, the system comprising:

3 a software portion configured to, responsive to the Domain Name System server
4 receiving a query from an IPv6 enabled node, the query identifying the
5 IPv6 enabled node, determine at least one identifier of at least one IPv6
6 connect agent; and
7 a software portion configured to send to the IPv6 enabled node the least one
8 identifier of the least one IPv6 connect agent.

1 31. The system of claim 30, further comprising:

2 a software portion configured to send to the IPv6 enabled node an associated
3 attribute concerning at least one IPv6 connect agent.

1 32. The system of claim 31, wherein:

2 at least one attribute comprises an address of an associated IPv6 connect agent.

1 33. The system of claim 30, further comprising:

2 a software portion configured to send to the IPv6 enabled node at least one name
3 of at least one IPv6 connect agent; and
4 a software portion configured to receive a name of a desired IPv6 connect agent
5 from an IPv6 enabled node.

1 34. The system of claim 33, further comprising:

2 a software portion configured to use the received name of the desired IPv6
3 connect agent to find a record in a lookup table; and
4 a software portion configured to glean from the found record an identifier of an
5 IPv6 connect agent to send to the IPv6 enabled node.

1 35. A computer readable medium containing a computer program product for an IPv6
2 enabled node to engage in IPv6 communication across a network containing IPv4 components,
3 the computer program product comprising:

4 program code for sending a query to a Domain Name System server, the query
5 identifying the IPv6 enabled node;

6 program code for receiving, responsive to sending the query, at least one identifier
7 of at least one IPv6 connect agent from the Domain Name System server;
8 program code for determining an IPv6 connect agent to use to engage in IPv6
9 communication across the network containing IPv4 components;
10 program code for determining an address of that IPv6 connect agent; and
11 program code for engaging in IPv6 communication across the network containing
12 IPv4 components, using the determined address to communicate with that
13 IPv6 connect agent.

1 36. The computer readable medium of claim 35, the computer program product further
2 comprising:

3 program code for receiving, responsive to sending the query, at least one
4 associated attribute concerning at least one IPv6 connect agent from the
5 Domain Name System server.

1 37. The computer readable medium of claim 36, wherein:

2 at least one received attribute comprises an address of an associated IPv6 connect
3 agent.

1 38. The computer readable medium of claim 37, the computer program product further
2 comprising:

3 program code for gleaned the address from a received associated attribute
4 concerning that IPv6 connect agent.

1 39. The computer readable medium of claim 35, the computer program product further
2 comprising:

3 program code for sending the received identifier of that IPv6 connect agent to the
4 Domain Name System server; and
5 program code for receiving, responsive to sending the received identifier, the
6 address of that IPv6 connect agent from the Domain Name System server.

1 40. A computer readable medium containing a computer program product for a Domain
2 Name System server to provide to an IPv6 enabled node an address of an IPv6 connect agent, the
3 computer program product comprising:

4 program code for determining, responsive to the Domain Name System server
5 receiving a query from an IPv6 enabled node, the query identifying the
6 IPv6 enabled node, the Domain Name System server, at least one
7 identifier of at least one IPv6 connect agent; and
8 program code for sending to the IPv6 enabled node the least one identifier of the
9 least one IPv6 connect agent.

1 41. The computer readable medium of claim 40, the computer program product further
2 comprising:

3 program code for sending to the IPv6 enabled node an associated attribute
4 concerning at least one IPv6 connect agent.

1 42. The computer readable medium of claim 41, wherein:

2 at least one attribute comprises an address of an associated IPv6 connect agent.

1 43. The computer readable medium of claim 40, the computer program product further
2 comprising:

3 program code for sending to the IPv6 enabled node at least one name of at least

4 one IPv6 connect agent; and

5 program code for receiving a name of a desired IPv6 connect agent from an IPv6

6 enabled node.

1 44. The computer readable medium of claim 43, the computer program product further
2 comprising:

3 program code for using the received name of the desired IPv6 connect agent to

4 find a record in a lookup table; and

5 program code for gleaning from the found record an identifier of an IPv6 connect

6 agent to send to the IPv6 enabled node.

1 45. A system for an IPv6 enabled node to engage in IPv6 communication across a
2 network containing IPv4 components, the system comprising:

3 means for sending a query to a Domain Name System server, the query

4 identifying the IPv6 enabled node;

5 means for receiving, responsive to having sent the query, at least one identifier of

6 at least one IPv6 connect agent from the Domain Name System server;

7 means for determining an IPv6 connect agent to use to engage in IPv6

8 communication across the network containing IPv4 components;

9 means for determining an address of that IPv6 connect agent; and

10 means for engaging in IPv6 communication across the network containing IPv4
11 components, using the determined address to communicate with that IPv6
12 connect agent.

1 46. The system of claim 45, further comprising:

2 means for receiving, responsive to having sent the query, at least one associated
3 attribute concerning at least one IPv6 connect agent from the Domain
4 Name System server.

1 47. The system of claim 46, wherein:

2 at least one received attribute comprises an address of an associated IPv6 connect
3 agent.

1 48. The system of claim 47, further comprising:

2 means for gleaning the address from a received associated attribute concerning
3 that IPv6 connect agent.

1 49. The system of claim 45, further comprising:

2 means for sending the received identifier of that IPv6 connect agent to the
3 Domain Name System server; and
4 means for receiving, responsive to having sent the received identifier, the address
5 of that IPv6 connect agent from the Domain Name System server.

1 50. A system for a Domain Name System server to provide to an IPv6 enabled node an
2 address of an IPv6 connect agent, the system comprising:

3 means for determining, responsive to the Domain Name System server having
4 received a query from an IPv6 enabled node, the query identifying the
5 IPv6 enabled node, at least one identifier of at least one IPv6 connect
6 agent; and
7 means for sending to the IPv6 enabled node the least one identifier of the least
8 one IPv6 connect agent.

1 51. The system of claim 50, further comprising:

2 means for sending to the IPv6 enabled node an associated attribute concerning at
3 least one IPv6 connect agent.

1 52. The system of claim 51, wherein:

2 at least one attribute comprises an address of an associated IPv6 connect agent.

1 53. The system of claim 50, further comprising:

2 means for sending to the IPv6 enabled node at least one name of at least one IPv6
3 connect agent; and
4 means for receiving a name of a desired IPv6 connect agent from an IPv6 enabled
5 node.

1 54. The system of claim 53, further comprising:

2 means for using the received name of the desired IPv6 connect agent to find a
3 record in a lookup table; and
4 means for gleaned from the found record an identifier of an IPv6 connect agent
5 to send to the IPv6 enabled node